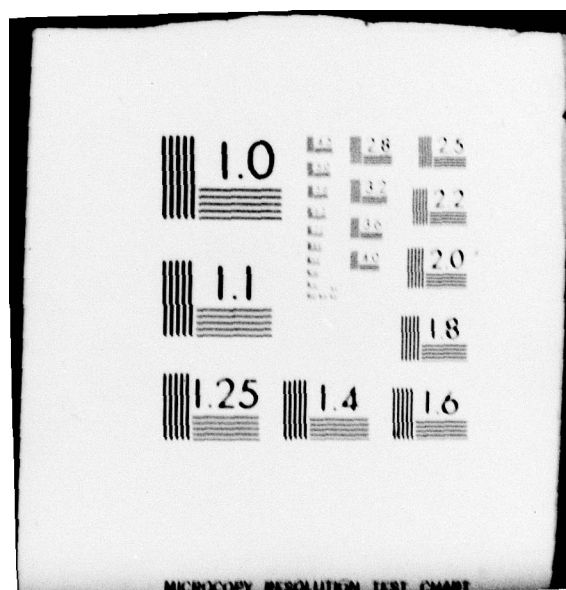


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RESEARCH INVOLVING COMMUNICATION PROCESSES IN TASK ORIENTED GRO--ETC(U)
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Tufts University

✓ Institute for Applied Experimental Psychology

Technical Report #3

⑩ Thornton B./Roby

⑥

Research Involving Communication Processes
in Task Oriented Groups. TECHNICAL
REPORT #3

⑨ Technical Rept.,

⑪

15 November 1960

⑫ 71

⑭ TR-3

Under contract with the
Office of Naval Research
Project Nonr-494(15)

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I. This research is concerned with the identification and investigation of the component processes in group information acquisition and use. The nature of the hypothesized components has been spelled out in earlier references. During the past year, studies concerned with several of these components have been completed.

A. Vigilance An earlier study investigating the effects of various types of individual assignment structure on group vigilance was repeated with a somewhat modified design. The design modifications were introduced in the hope of clarifying the relationship between individual performance and group effectiveness. Analysis of the data, however, indicated that the new experiment had completely failed to satisfy this objective: that is, there were no consistent relationship between measured individual and group performance.

Because of the evident difficulty of pinning down the relations between individual and group performance, it was decided to investigate individual vigilance in a situation in which social factors were more strictly controlled. A study (under joint sponsorship by the Air Force Cambridge Research Center, Operations Application Laboratory) test individual detection of an auditory code signal under various conditions of simulated partner interaction. Briefly, these conditions devolve upon whether the subject was advised of his "partner's" judgment before he is exposed to a signal; after exposure but before report; after report; or not at all. Results of this study are being analysed, using in informational measure of accuracy of detection.

B. Phasing

Phasing may be defined as the process wherein sub-tasks performed by various group members are coordinated to minimize interference and maximize mutual facilitative effects. Although, there are

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both normative and behavioral aspects of this problem, it has been judged advisable to concentrate on the latter in our laboratory studies. Hence, the principle concern is with the cues that group that group members employ to coordinate their task performance, and with the attitudinal and related social-emotional elements that may influence the phasing process.

Analysis was completed of a study described in the previous annual report which incorporated two phasing tasks: a running arithmetic problem, and a crossword puzzle type task. As noted at that time, it appears that extraneous factors (e.g. 'shock' at being faced with a numerical problem; verbal fluency; etc.) completely masked any effects due to phasing. However, an exhaustive analysis of the communication protocols did turn up indices which appear promising for further studies.

Exploratory studies are now in progress employing a somewhat different task; one in which each group member has a list of words to complete and it is required to exchange letters with other group members in order to complete the words. Present interest attaches primarily to the developmental sequences which groups appear to exhibit when given a set of tasks of graded difficulty. It is planned next to study the effects of various task parameters.

C. Storage

This sub-function is the approximate group analog of individual memory. In a group context, however, questions of optimal storage structure, differential access time, and relative incentive conditions, come into prominence.

The design for a formal experiment on the storage problem was described in the previous annual report. This study has been completed

and analyzed. Significant differences were obtained with respect to an incentive variable but the results bearing on group structure were inconclusive. A draft report of the study has been completed and is undergoing final revision.

D. Patterning

This sub-function is concerned with the group's ability to obtain a rounded picture of their environment on the basis of the fragmentary perspectives of individual group members. A formal study of this function set as a task the requirement for groups of three persons, visually isolated, to fill in cells in a patterned matrix. Geometric forms in the matrix varied along two dimensions; and it was necessary for group members, none of whom had all the relevant information, to infer the dimensions of variation and to determine the missing patterns that would properly fit these dimensions. The principle experimental variable in the study was the presence of a designated 'coordinator', an emergent coordinator, or no coordinator. The results indicated that a designated coordinator condition produced the most successful performance.

E. Addressing

A series of pilot studies has been completed on the process of "addressing", defined as the knowledge group members acquire as to the location of essential information among other group members. Based on these studies, a formal study is now being planned which will concentrate largely on individual learning factors. The experimental variables will be number of information categories and the specific conditions of learning, such as immediacy of feedback and opportunity for rehearsal.

It is now intended to compile all of the studies described above into a single consolidated report. Such a report seems to be

the appropriate vehicle for publication in view of the exploratory nature of many of the studies, and the fact that the whole research program has been concerned with parametric identification rather than with the testing of explicit hypotheses. This report is now in preparation.

During the past year, the principal investigator has participated in a series of seminars, sponsored by the Office of Naval Research, on recent developments in group theory. In conjunction with this seminar, a monograph has been prepared that attempts to develop a consistent framework for a parallel empirical and mathematical theoretical investigation of small group performance. The present intention is to revise this monograph fairly extensively to increase its readability, and to submit it for publication.

A paper on "The Executive Function in Small Groups", originally presented at the 1959 ONR-LSU symposium on leadership, has been revised for publication in a forthcoming volume based on that symposium.

II. Personnel

Thornton B. Roby, Principal Investigator

Bernard W. Harleston, Research Associate (Until August 1960)

Lorraine D. Eyde, Research Associate (Until July 1960)

Harvey Roazen, Research Associate (Beginning September 1960)

III. References

- Harleston, B. W., Eyde, L. D., and Roby, T. B., "Organization and Group Vigilance", paper presented at 1959 Meeting of American Psychological Association in Cincinnati, Ohio.
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